

REMARKS

Claims 12 to 25 are pending in the present application.

In view of the following, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

With respect to paragraph three (3) of the Final Office Action, claims 12 to 25 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Kinugasa et al., U.S. Patent No. 5,924,406 (the Kinugasa reference) and Smit et al., U.S. Patent No. 4,458,318 (the Smit reference).

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Also, as clearly indicated by the Supreme Court in *KSR*, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 12 provides the feature in which for a combustion engine or for an electrical machine, the operating point includes at least one of a setpoint speed and a setpoint torque, and includes a setpoint ratio for a transmission. In this regard, paragraph [0034] of the present patent application discloses a map-based operating strategy. This operating strategy is used to determine either the setpoint speed or the setpoint torque of the combustion engine

and/or the electrical machine, and a setpoint ratio for the transmission. The latter happens with the aid of families of shift maps as described in paragraph [0036] of the present application. After determining the setpoint ratio for the transmission, the shift maps are further used in conjunction with the discretized electrical power, the speed of the vehicle and the desired output torque to obtain the setpoint speed or setpoint torque.

Accordingly, any review of the applied references makes plain that the method of claim 12 is simply not disclosed by the applied reference(s).

Even if the Kinugasa reference did indicate that a gear position of an automatic transmission device is controlled by a transmission control device using one of a plurality of shift patterns, in which shift patterns are configured for different driving situations (for example, driving on a level road, climbing an uphill road or descending a downhill road), *it does not disclose that the shift pattern is chosen based on the required electrical power – that is, one in which the setpoint ratio is determined from a characteristic map, which is selected from a plurality of characteristic maps on the basis of the required power, as provided for in the context of the presently claimed subject matter.*

As to the Smit reference, it only refers to adapting a transmission ratio based on an engine speed and a set engine speed (see, e.g., figures 9a and 9b of the Smit reference.) This means that the ratio of the transmission is determined only after the engine speed and the set engine speed are known. In contrast to that, the presently claimed subject matter provides for determining the set point ratio for the transmission together with a set point speed or a set point torque from a characteristic map that is selected based on the electrical power required by a power consumer.

Also, the operating point that includes the set point speed or the set point torque, as well as the set point ratio, is determined as a function of the characteristic map based on a plurality of at least one of kinematic and dynamic degrees of freedom.

Even the Kinugasa reference and the Smit reference are combined, the resulting method cannot show that the set point ratio is determined from the characteristic map together with the set point speed or the set point torque, as provided for in the context of the presently claimed subject matter. Instead, the method would first determine the engine speed and the set engine speed and only after this determine the ratio for the transmission using the comparator as shown in figure 9b of the Smit reference. It is therefore not known to determine set point speed or set point torque and set point ratio for the transmission from the

characteristic map that is chosen in regard to the required electrical power by power consumers.

Still further, even if the Smit reference did indicate controlling a transmission ratio as a function of a setpoint speed, *it does not disclose that the transmission ratio is chosen based on the required electrical power – that is, one in which the setpoint ratio is determined from a characteristic map, which is selected from a plurality of characteristic maps on the basis of the required power*, as provided for in the context of the presently claimed subject matter.

In particular, the presently claimed subject matter concerns optimizing not only the operating point of a combustion engine, but the whole drive train (consisting of the engine, the transmission and eventually an electrical machine) based on the required electrical power. This is not disclosed by either the Kinugasa or Smit references, either alone or in combination.

Still further, claim 12 relates to a method for setting an operating point of a drive train whose purpose is to provide a mechanical and an electrical power output, and includes the features of *selecting a characteristic map from a plurality of characteristic maps on the basis of a required electrical power by power consumers*, distinct from an energy storage device, of an on-board electrical system; and as a function of the characteristic map, selecting the operating point on the basis of a plurality of at least one of kinematic and dynamic degrees of freedom.

The Kinugasa reference does not disclose (or even suggest) the feature of *selecting a characteristic map from a plurality of characteristic maps on the basis of a required electrical power by power consumers*, as provided for in the context of claim 12. Instead, the Kinugasa reference merely refers to specific fuel consumption maps “corresponding to the operating conditions of the internal combustion engine.” (Kinugasa, col. 12, lines 9 to 13 (emphasis added)).

In this regard, the Kinugasa reference defines “operating conditions of the internal combustion engine” as including “an engine speed, an intake air flow rate, a load of the internal combustion engine and a throttle valve opening,” and as separate and distinct from operating conditions of the auxiliary equipment. (Kinugasa, col. 4, lines 1 to 4). Accordingly, the Kinugasa reference merely indicates that the specific fuel consumption map “is set as a function of the engine speed and the base output torque ... [or] as a function of, for example,

the kind of the internal combustion engine, the load of the internal combustion engine, the intake air flow rate and the torque.” (Kinugasa, col. 11, line 64 to col. 12, line 4).

Therefore, the Kinugasa reference merely refers to setting the specific fuel consumption map as a function of operating conditions of the internal combustion engine, and it consequently does not disclose (or even suggest) the feature of *selecting a characteristic map from a plurality of characteristic maps on the basis of a required electrical power by power consumers*, as provided for in the context of claim 12.

Further, after a specific fuel consumption map has already been chosen corresponding to the operating conditions of the internal combustion engine, the Kinugasa system determines the suitability for driving auxiliary equipments. (Kinugasa, col. 5, line 65 to col. 6, line 4). However, this determination may merely alter the operating region within the previously-chosen specific fuel consumption map, but it is not a basis for choosing the previously-chosen specific fuel consumption map. (Kinugasa, col. 6, lines 5 to 65; and Figures 7A, 7B).

Nonetheless, the Final Office Action at pages 5 to 6 asserts that Figures 7A and 7B of the Kinugasa reference disclose the features of claim 12. In this regard, the Final Office Action conclusorily states that “Kinugasa et al. can operate using at least two different characteristic maps (as illustrated in figures 7A, 7B).” However, it is respectfully submitted that Figures 7A and 7B illustrate the same characteristic map. A close inspection of Figures 7A, 7B of the Kinugasa reference plainly reveals that they illustrate one and the same characteristic map, and the only difference therein is an indication of the present operating region as Region 1 in Figure 7A or as Regions 1+2 in Figure 7B. (Kinugasa et al., col. 6, lines 42 to 65). As explained above, the specific fuel consumption map shown in Figures 7A, 7B was previously chosen based on the operating conditions of the internal combustion engine. Only after a particular specific fuel consumption map is already chosen is a particular operating region within the map then determined, as shown in Figures 7A, 7B.

Therefore, the Kinugasa reference does not disclose (or even suggest) the feature of *selecting a characteristic map from a plurality of characteristic maps on the basis of a required electrical power by power consumers*, as provided for in the context of claim 12. The Smit reference does not cure - and is not asserted to cure - the critical deficiencies of the Kinugasa reference.

Accordingly, it is respectfully submitted that claim 12 is allowable, as are its dependent claims 13 to 25.

As further regards all of the obviousness rejections, any Official Notice is respectfully traversed to the extent that it is maintained and it is requested that the Examiner provide specific evidence to establish those assertions and/or contentions that may be supported by the Official Notices under 37 C.F.R. § 1.104(d)(2) or otherwise. In particular, it is respectfully requested that the Examiner provide an affidavit and/or that the Examiner provide published information concerning these assertions. This is because the § 103 rejections are apparently being based on assertions that draw on facts within the personal knowledge of the Examiner, since no support was provided for these otherwise conclusory and unsupported assertions. (See also MPEP § 2144.03).

In sum, it is respectfully submitted that claims 12 to 25 are allowable.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all of the presently pending claims are allowable. It is therefore respectfully requested that the rejections (and any objections) be withdrawn. Since all issues raised have been addressed, an early and favorable action on the merits is respectfully requested.

Respectfully submitted,

Dated: 10/5/2009

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